Effects of Real Estate Tax Rate Changes on Market Values; and a Method of Computing Economic Rent

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HERE is an approach that can be developed easily and accurately by researchers in this field. The economic rent of a city can be estimated in a matter of minutes; and by extension, the same formula will reveal the economic rent of the country. We need such estimates if we wish to demonstrate that economic rent is sufficient for the properly limited functions of government. Following is an example indicating methods and results.

A small apartment house was purchased recently for, say, $150,000, all cash. (Actually the price paid was $163,000; $18,000 cash, subject to a first mortgage of $105,000 for 15 years at 6 per cent per annum, and a second mortgage of $40,000 for 8 years at 6 per cent per annum. This second mortgage may have a market value of approximately $27,000, that is, its immediate cash value if offered for sale by the present holder is $13,000 less than its face value, which is at a discount of 32.5 per cent for 8 years, or a little more than 4 per cent per annum discount).

The assessed value of this property is $15,000 for the land and $75,000 for the building, or a total of $90,000. At the same ratio of building to land, namely 5 to 1, we may use a figure of $25,000 for the market value of the land and a figure of $125,000 for the market value of the building, making the total of $150,000.

The total assessed value of $90,000 is 60 per cent of the total market value of the property. The present tax rate of 5 per cent on assessed value of $90,000 is equivalent to 60 per cent of 5 per cent or 3 per cent on the market value of $150,000.

Assume that after all expenses: maintenance, fuel, electricity, water, insurance, repairs, janitorial services, vacancies, commissions for getting new tenants, legal and accounting expenses, taxes other than real estate taxes, and depreciation, there is left, out of the gross income, the sum of $18,000. This is the amount available for the real estate tax and the net income to the owner. Since the real estate tax is 5 per cent of the assessed value of $90,000 or in terms of market value, 3 per cent of $150,000, which is $4,500, the balance of $13,500 is the owner's net income and is equal to 9 per cent of an investment of $150,000.

Thus we may write that the amount available for real estate tax and net return to the owner is $(.03 + .09)$ $(\$125{,}000 + \$25{,}000) = \$18{,}000$.

If the tax rate goes up 1⅔ per cent (from 5 per cent to 6⅔ per cent) this is equivalent to 60 per cent of 6⅔ per cent or 4 per cent of the market value. The 6⅔ per cent rate is on the assessed value of $90,000 and produces a tax of $6,000, which is the same as taking 4 per cent of $150,000, the full market value.

After the tax rate increase, assuming other things equal or unchanged, there is still $18,000 available for real estate tax and owner's net income. We must deduct 4 per cent of $150,000 or $6,000 from $18,000, leaving $12,000 for the owner. This is 8 per cent per annum on the investment of $150,000.

Let us assume, from the original actual sale which gave the new owner

a 9 per cent yield, that 9 per cent is the rate of return expected by prospective purchasers. (This figure will change at various times and places and for different types of tenancies and some good approximation of it can be made by men in the field.) After the tax rate increase, the property is no longer worth $150,000, for, at that price, the purchaser could expect only an 8 per cent yield. Neither the gross income of the property nor its assessed value, changes quickly, although as will be seen, changes will come about. On the basis of a 9 per cent yield, the new market value is $138,462. Proof: new real estate tax is 4 per cent of $138,462 or $5,538. The total available for real estate taxes and owner's income is assumed to be unchanged at $18,000. Deducting $5,538 from $18,000 leaves $12,462. This is 9 per cent of the new market value of $138,462.

The drop in the market value from $150,000 to $138,462 or $11,538 may be distributed in any number of ways against the building and against the land. This is a question in which a prospective purchaser is not interested. As far as he is concerned, the total value of the property has fallen to $138,462 and that is the price he can pay for the yield he is looking for.

For our purposes, however, it is worthwhile to consider the consequences if the drop in market value is ascribed to the building alone, or to the land alone, or distributed between the two. This distribution would usually be in the same proportions as original building value to land value, namely, in our example, 5 to 1. On this basis, the building would be valued at $115,385 and the land at $23,077, making a total of $138,462. The building drop of $9,615 is five times the land drop of $1,923, the two together making up the total drop in market value of $11,538.

Consider the assumption that the entire loss in market value ($11,538) is borne by the site, an assumption based on the fact that the bricks and mortar of the buildings are exactly the same the day before as the day after the tax rate increase. On this assumption, each increment in tax rate further reduces the land value, until it goes to zero. Calculation shows that at a tax rate equivalent to 5.4 per cent of the market value, the land value becomes exactly zero. Proof: $(.054 + .09)\ ($125,000) = $18,000 available for real estate tax and owner's income.

In the case of a new building, this means that a builder, seeking to put up an identical building on a similar adjacent site cannot afford to pay more than zero for the land if he expects to earn from the building a net income of 9 per cent on his investment.

There is a difficult problem when old buildings are considered—the problem of replacement value, always a thorny one for appraisers.

From one point of view, the old building should be considered as having the same value before and after the tax rise. On this assumption, there is a result which appears illogical. In our example, we ascribed the $11,538 loss to the land, reducing its theoretical market value to $13,462. But if the same calculation is performed on an adjoining, identical site, improved with a smaller or a larger building, the resulting value of the land is different in each case, being smaller for the larger building site and larger for the smaller building site.

It can be argued that because the old building is already attached to the land, its value may vary inversely depending upon the value of the building upon it.

It can also be pointed out that there must be some ideal ratio of proper building for a given site that would yield the largest net income to the owner and that it is upon this ratio that the land value should be deter-

mined. This method gives as a residual the value of the building.

There is another assumption that can logically be made. That assumption is that the increased tax on the building (caused by an increased tax rate, other things being equal) can be passed on to the tenants and that the increased tax on the land value (caused by the same increased tax rate) cannot be passed and must be lost by the owner—that is, his net income is reduced by the increased tax on the land value only.

On this assumption, additional increments to the tax rate lower the value of the site but in such a way as to approach but never reach zero. Then it turns out that regardless of the size of the building in relation to identical sites, the resulting lowered land values are identical.

In figures, for our example, the amount available for the real estate tax and owner's net income is assumed to be increased by the extra tax on the building alone. If the new rate is 1 per cent higher than the old rate (based on market value) the gross income of the building is assumed to increase by .01 ($125,000) or by $1,250. This added on to the $18,000 previously available gives the new amount available as $19,250.

The new rate of 4 per cent plus the 9 per cent rate on the owner's investment applied to the sum of the building and land value is therefore equal to $19,250. The building value is assumed constant at $125,000. The land value falls to such a point as to satisfy the equation. That value is $23,077, for (.04 plus .09) ($125,000 plus $23,077) is equal to $19,250.

If the same calculation is performed on an identical site, on which the building is worth $100,000 or $200,000 or any other figure (assuming sufficient income to make 14 per cent of the total market value available for taxes and yield to owner), the land value remains constant at $23,077.

Determination of Economic Rent

More important and of inestimable value in research along these lines is the following method of determining the economic rent of land. To go back to our original example: a 3 per cent tax on $150,000 = $4,500, or the amount paid in real estate taxes. If the selling price of the site were reduced to zero by reason of an increased tax thereon, while the tax on the building were removed, the owner should get 9 per cent of the building value only, or $11,250. Since he was getting $18,000 as available for tax and owner's income, the difference $18,000—$11,250 or $6,750 is the economic rent for the land.

For if the city collected $6,750 on the land, it would leave to the owner $11,250 equal only to his expected return of 9 per cent of $125,000.

For a given property, producing a 9 per cent yield to the owner, this method of calculation is apparently independent of building to land ratio. But if an adjoining property on which there is a $100,000 building also yields 9 per cent to the owner, the lot being also valued at $25,000, the amount available for taxes and yield is (.03 plus .09) ($100,000 plus $25,000) or $15,000. Deducting 9 per cent of $100,000 leaves $6,000 as the rental value of the land, as compared with $6,750 for an identical lot in the previous example.

The correct rental value can be defined as the maximum rental figure as determined by the best building on a given site which is the one that yields the maximum net income.

It is interesting that if total loss is ascribed to the lot, the market value of building being unchanged, and the economic rent is sought after a change in tax rate, we get the same economic rent for the site and the same yield of 9 per cent on the same building.

This is merely an introduction to methods that may be developed by those engaged in real estate studies.